

Titles and Abstracts
Goshen College 7th Annual
Undergraduate Research Symposium

Suzi Arsenovic and Gladys Zoleko

Department of Psychology

Influences on Adolescent Female's Career Aspirations: Home Versus Public

In this presentation Sixty-six adolescent females were surveyed to examine the relationship between type of schooling and career aspirations. Of the females between the ages of fourteen and nineteen, seventeen were home-schooled and forty-nine were public schooled. An analysis of career aspirations was based on academic success, parental occupation, and gender role perception. Overall findings indicate that home schooled females tend to be more stereotypical in regards to traditional female roles. Additionally, no significant difference was found to support a hypothesis that those who are home schooled are more likely to be interested in stereotypical gender role careers than their non-home schooled counterparts. Further studies need to work on gathering a larger sample.

Katie Boyts

Department of Peace, Justice and Conflict Studies

Belief in a Just World Theory and Reconciliation

Brianne Donaldson

Department of Bible and Religion

Living in a "Moldy Bread Illusion?" Being Chosen by a Faith Narrative

John Eicher

Department of History

Midwest Organic Farming: Thinking Differently About Agriculture

This presentation deals with the contrasting world-views of organic and commercial farmers in northeast Indiana. In the United States, commercial farming and the industries that rely on it are a large source of financial income for many Americans and a large source of food for people around the world. As a result, many commercial farmers view themselves as necessary in sustaining the global population and national economy. Small-scale organic farms stand in contrast to this worldview. These farmers grow produce primarily for a local market. Organic farming enriches the community by providing greater economic benefits for local populations while cutting the potential for negative environmental reproductions. Additionally, organic farming contrasts commercial farming by emphasizing communal rather than global food production. In the interviews I conducted with three organic and three commercial farmers, I saw these paradigm contrasts first-hand. In this presentation I will discuss the different social and economic perspectives that contribute to their choice of farming methods and explore the underlying philosophies between these two demographics.

Ben Friesen
Department of English
Misunderstanding Misogyny in Mamet

Katie Hochstedler
Department of Social Work
Coming-out in Conflict: Social Work Practice with the Gay, Lesbian, and Bisexual Client
Coming Out to the Family of Origin

Coming out to family as gay, lesbian, or bisexual can be a difficult process for any youth or young adult. One cannot know how the family may react. It is important for a social worker working with gay, lesbian, or bisexual clients to be familiar with the process and ways in which they can help. The social work profession has a special capacity to help individuals and families deal with the coming out process. In this presentation, I provide an overview of the issues faced by the client and family during this process and give recommendations for effective social work practice with these clients.

Professor David Housman, Ph.D.
Department of Mathematics
Allocating the Fruits of Cooperation

Alice Houston
Department of English
John Dryden's Literary Commentary in Mac Flecknoe

This essay deals examines literary commentary in John Dryden's late seventeenth century mock-epic satire, *Mac Flecknoe*. I seek to establish the interpretation that Dryden's concerns regarding aesthetic values and literature's position in society convey themselves through prophecy and carnival. Dryden's role as a poetic prophet to his literary society is emphasized through his use of satirical form. Shadwell acts as "Lord of Misrule," leading carnivalistic crowds to disclaim the value of accepted aesthetics and "true wit." He confirms the presence of a public audience through *Mac Flecknoe's* stage-like setting in the city. Like a prophet, his message is for the masses, and the carnival atmosphere serves to illustrate the presence of everyday readers. Poetic form, in addition to these mentioned themes, reflects a significant meaning in Dryden's work. Its disparity and humor display "true wit," the aim of any seventeenth century author.

Aeron Huang
Department of Mathematics
Graphical Approach and Property Tests in Fair Division Problems with Indivisible Objects and Monetary Compensation

Consider the following problem: three siblings (Anna, Bruce and Calvin) are trying to divide three objects (a cabin, a car and a set of antique dishes) as their inheritance. Anna thinks the cabin worth \$5,000, the car worth \$2,000 and the dishes

worth \$500; Bruce thinks the cabin worth \$2,000, the car worth \$8,000 and the dishes worth \$0; Calvin thinks the cabin worth \$10,000, the car worth \$200 and the dishes worth \$50. What would be the fair way to divide these three objects? Which method of dividing would satisfy all three siblings? This presentation introduces a graphical approach toward the study of several properties in a fair division problem with indivisible objects and monetary compensation. The properties include efficiency, envy-freeness, individual rational and individual stand-alone.

Jason Kauffman

Department of History

Ecotourism and Sustainability on the Osa Peninsula, Costa Rica

This presentation addresses the subject of ecotourism and the issue of sustainability. According to Caroline Stem of Cornell University, sustainable ecotourism must achieve “low impact, while providing tangible benefits for both the environment and surrounding communities.” Current scholarship contends that sustainable ecotourism is attainable and is already being implemented in places such as Australia and Costa Rica. Caroline Stem shows that through the use of a case study on the Osa Peninsula in southwestern Costa Rica, truly sustainable ecotourism is ultimately unattainable. This presentation will show how a generalized, overarching view of sustainability is insufficient to address the intricacies and complexities of the world’s (and even Costa Rica’s) diverse ecosystems.

Kayla Kauffman

Department of Bible and Religion

The Significance of Vultures in Luke 17:37

Daniel King

Department of Physics

Holographic Interferometry of Hand Bells

Modern hand bells are unique musical instruments that are used primarily in churches and schools. The overtones visible in the audio spectrum of the sound produced by a hand bell are the result of resonating patterns that are called vibrational modes. The vibrational modes exist in nearly degenerate pairs, and the acoustical beating which occurs as a result of these pairs is a component of the unique tone of a hand bell. Real-time holographic interferometry equipment was used to study these pairs of vibrational modes in several different hand bells. In an attempt to understand the difference between good and bad hand bells, measurements of frequency and position of the vibrational modes were made. The relationship and interactions between these pairs were also recorded. Naturally occurring combined modes were discovered and the possibility of intentionally combining the nearly-degenerate modes into true degeneracy was explored through the use of adding mass.

Nick Loewen

Department of Theatre

Ingmar Bergman's Work in Film, Television, and Drama: A Look at the Artist Through his Medium

Daniel Love and Rachel Reimer
Department of Psychology
Alcohol Use on Campus

Two hundred fifty-nine students at a small liberal arts college in northern Indiana were surveyed regarding their use of and beliefs about alcohol. The main purpose of this study was to explore alcohol usage on the college campus, to compare student alcohol usage to family alcohol usage, and to examine student's perception of alcohol usage on campus. Surveys were distributed at a well attended convocation. Participants were asked to return the completed survey after the convocation. The findings support that students who come from families in which alcohol is consumed will be more likely to consume alcohol during their college years. The findings also support that students perceive a greater amount of alcohol consumption than actually occurs and that the majority of drinking by college students occurs off-campus. Further research could examine the impact direct dialogue between parents and children about alcohol consumption might have on a student's decision to consume alcohol in college.

Ulises Martinez
Department of Mathematics
Fair Division of Divisible Goods: What About a Budget Constraint?

Some allocation methods for fair division problems require persons receiving highly valued goods to compensate, with money, others who have received less valuable goods or no goods at all. Depending on their budgets, some persons may not have sufficient money to provide the required compensation. In this research, the idea of budget constraints is illustrated using three different methods of allocation: First-Price Auction, Knasters Method, and the Equitable Method. Using a few examples, the following properties of allocation methods are defined and demonstrated: efficient, envy-free, and group rational.

Professor Bobby Meyer-Lee, Ph.D.
Department of English
Poets and Politics: The Invention of the English Literary Tradition

Odelet Nance, Doctoral Candidate
Director of Multicultural Affairs
The Role of Religion in the Lives of First Year African American Christian Students at a Predominately White Institution

Joel Nofziger
Consumerism and the Family

The values of many North Americans tend to align with materialism and the association of subjective well being with financial success. Financial success, however, contrasts significantly with a good feeling of community and the health of families. This presentation explores some of the negative effects of consumerism on the family by briefly exploring three phenomena that relate to consumerism and the family. These phenomena are: divorce, outsourcing and television. The presentation then concludes with some practical ways in which families can counter the negative associations of these phenomena as well as some ways in which families can more responsibly consume.

Andrea Shepherd and Erica Nofziger
Department of Nursing
Egocentrism in the Developing Child

Research in a 200 level Developmental Psychology course was conducted to determine the age at which children are no longer egocentric in relation to perspective taking. Egocentrism is defined as the “inability to differentiate one’s own viewpoint from that of others” (Gjerde, Block, & Block, 1986, p. 423). Egocentrism occurs when a young child has identified his or her viewpoint and believes everyone else is thinking and seeing the same thing, even when in reality perspectives are different (Gjerde, Block, & Block, 1986). Past research has found that children show strong signs of egocentrism until approximately the age of four or five, in which they begin to be selfless, understand that the world they live in is changing, and focus on more than just appearances (Berger, 2005). In order to determine what age children were able to overcome their own egocentric views, research was conducted interviewing children ages three to five using a dollhouse as the object of testing.

Professor Brenda Srof, Ph.D.
Department of Nursing
The Effects of Coping Skills Training on Self-efficacy, Social Support, and Asthma Related Quality of Life Among Teens with Asthma

Marcos Stolfus
Department of Bible and Religion
The Ancient Greek Novel: Paving the Way to an Understanding of Paul

Keri Swartzendruber
Department of Nursing
Music Therapy in Infants: A Review of Clinical Research Literature

In the past, using music therapy with infants has been a popularly researched topic. Using auditory, tactile, visual, and vestibular stimulation illustrates both beneficial uses as well as negative issues. This presentation will include a review and critique of selected clinical research studies in which the effects of music on high-risk infants were examined.

Sam Tyx

Department of Psychology

Blood, Suffering, and Sacrifice: Did "The Passion" Persuade?

Robert Vander Giessen-Reitsma

Department of Peace, Justice and Conflict Studies

Engaging the World: The Intersection of Neocalvinism and Walter Wink

Drew Weber

Department of Environmental Studies

Effects of Surrounding Landscape Features on Avian Populations

Habitat structure has been shown to have a strong influence on the bird communities living within it. My presentation looks at the effects that landscape features have on bird populations in a variety of habitats. My study measured habitat composition and nearby features at a 500-ha site in Noble County Indiana to determine which landscape features most significantly affect diversity and density. Canonical Correspondence Analysis (CCA) was used to show correlations between bird species and habitat types and the Shannon diversity index was used to calculate diversity levels for each site. Proximity to landscape features such as roads and agricultural fields were shown to affect bird community composition, as did the proximity to other habitat types. The area of surrounding landscape with appropriate habitat also affects community composition. However, using only habitat areas was shown to be less accurate than considering both total available habitat and proximity of landscape features.

Jenna Wysong

Department of English

Desdemona's Demise: Selfishness and Social Structures

In my presentation I argue that the ultimate irony in William Shakespeare's Othello is that Desdemona, the only truly unselfish character, falls victim to the selfish ploys of male characters who enact the patriarchal social structure of Renaissance England. First, I explain why Desdemona alone is unselfish by evidencing the selfishness of other characters as well as her own selflessness. Next, I demonstrate how the subordinate role of women in society and the home defined the patriarchal social structure of Shakespeare's England. Finally, I combine these two ideas by showing how the selfish male characters in the play use the patriarchal social structure to bring Desdemona down. I conclude by saying that the irony of this tragic ending reveals an important revelation about human nature: the fact that human selfishness plays a key role in the tragic events of life.

Peter Widmer

Department of Business

Discovering the Marketing Mix of the Goshen Health System

Jamin Yoder

Department of Biology

Variability of Glycerol Transport Efficiency in Rats, Guinea Pigs, and Rabbits

The rate of membrane transport within members of a species is usually assumed to be constant. In my research the glycerol transport rate into erythrocytes of three rodents was investigated by measuring hemolysis time using spectrophotometry. In rats, erythrocyte hemolysis time in a 300 mM glycerol solution varied only from 17 s to 20 s. In rabbits, however, it varied from 17 s to 732 s and, in guinea pigs, it varied from 95 s to 328 s. The standard deviation of hemolysis times for rats, rabbits, and guinea pigs is, respectively, 1.5 s, 201.9 s, and 100.0 s. Data collected clearly exhibit a large degree of genetic heterogeneity with respect to porin-mediated glycerol transport in rabbits and guinea pigs but not in rats. The observed heterogeneity suggests the possibility that other species may also be heterogeneous in porin-mediated transport of glycerol or other substances.